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electrically insulating layer by which the wall is electrically isolated from the fluid material within the cavity.

6. (Amended) An apparatus in accordance with claim 1, wherein the resonant cavity has an inlet and an outlet such that the fluid material can flow through the cavity.

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7. (Amended) An apparatus in accordance with claim 1, wherein the means for detecting electromagnetic radiation within the cavity comprise a receiver antenna disposed within the resonant cavity and electrically isolated from the fluid material within the cavity.

8. (Amended) An apparatus in accordance with claim 1, wherein the means for detecting electromagnetic energy within the cavity comprise electronics connected to the emitter antenna for measuring the voltage standing wave ratio.

9. (Amended) A device for monitoring constituents of a fluid flow comprising an apparatus in accordance with claim 1.

11. (Amended) A device as claimed in claim 9, further comprising means for measuring additional properties of the fluid flow and calculating means for determining, on the basis of the measured properties, the proportions of certain constituents of the flow.